

DOCUMENT RESUME

ED 212 973

CS 006 477

AUTHOR Hicks, Reta D.; And Others
TITLE Relationships of the Cognitive Tempos of Elementary School Children and Responses on the Cloze Informal Reading Inventory.

PUB DATE Dec 81
NOTE 12p.; Paper presented at the Annual Meeting of the National Reading Conference (31st, Dallas, TX, December 2-5, 1981).

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Cloze Procedure; Cognitive Tests; *Conceptual Tempo; Elementary Education; Elementary School Students; Informal Reading Inventories; Measurement Techniques; *Reading Diagnosis; *Reading Research; *Time Factors (Learning)

ABSTRACT

Student cognitive tempo is commonly determined through scores on the Matching Familiar Figures (MFF) test. According to the speed and accuracy of their responses to items on the test, students are classified as either reflective or impulsive. While little is known about the response patterns of reflective and impulsive individuals on specific reading tasks, the nature of reading would imply that reflective individuals would perform better. To test this belief, a study was conducted to determine the relationships between types of responses made by elementary school children on a cloze informal reading inventory (CIRI) and scores on the MFF. Subjects were 125 second through sixth grade students who were administered the MFF and CIRI that had been constructed from a basal reader series. The results showed that types of responses made on the CIRI were not affected to a significant degree by cognitive tempo as measured by the MFF. (FL)

* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *

ED212973

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION
CENTER (ERIC)

☒ This document has been reproduced as
received from the person or organization
originating it.

☐ Minor changes have been made to improve
reproduction quality.

• Points of view or opinions stated in this docu-
ment do not necessarily represent official NIE
position or policy.

Relationships of the Cognitive Tempos of Elementary
School Children and Responses on the Cloze
Informal Reading Inventory

Reta D. Hicks, Eula E. Monroe, Jeri A. Carroll, and Daniel L. Roenker

Western Kentucky University

Bowling Green, KY 42101

(502) 745-2157

"PERMISSION TO REPRODUCE THIS
MATERIAL HAS BEEN GRANTED BY

Reta D. Hicks

TO THE EDUCATIONAL RESOURCES
INFORMATION CENTER (ERIC)."

CS006477

Relationships of the Cognitive Tempos of Elementary
School Children and Responses on the Cloze
Informal Reading Inventory
Introduction and Rationale

For more than a decade numerous investigations have been made into the concept of cognitive tempo. A review of the literature indicates that there probably are stable and transsituational differences in conceptual tempo among children across a variety of tasks. In educational circles, tempo or reflectivity-impulsivity is operationally defined by scores on the Matching Familiar Figures (MFF) test (Kagan, Rossman, Day, Albert, & Phillips, 1964) or on the Kansas Reflection-Impulsivity Scale for Preschoolers (Wright, 1971). Classified as reflective are those who score high in latency (time) to the first response made on each item and low in errors; those who score low in latency (time) and high in errors are classified as impulsive. Because of a negative correlation between latency and errors (-.40 to -.70), these two styles encompass about two-thirds of the population. The other one-third fall in the less frequently mentioned categories of slow-inaccurate (inefficient) and fast-accurate (efficient) responders (Salkind & Wright, 1977).

There are limitations within the MFF which should be noted. The terms reflective and impulsive can be misinterpreted according to common usage and by their use in efforts to understand personality functioning (Block, Block, & Harrington, 1974). Also, some educators have questioned the construct validity of cognitive tempo. It has been suggested that Kagan's theoretical rationale underlying the MFF was misleading (Block, et al., 1974). Kagan defined impulsivity-reflectivity in terms of

response latency; however, the MFF gave weight to accuracy as well as latency. A review of the literature by Block comparing MFF scores with several constructs--specifically, generality of MFF responses, visual scanning strategies, altering response style, anxiety-eliciting conditions, generalizability of impulsivity or reflectivity to other tasks, risk-taking behavior, and personality characteristics--reveals varying results on each dimension. This evidence led Block to indeed question the construct validity of the MFF.

In defense of his theory, Kagan later stated (Kagan & Messer, 1975):

Reflection is defined semantically as the consideration of alternative solution hypotheses (either classifications or problem solving sequences) when many are available simultaneously. Reflection does not refer to delay that is the result of fear of failure, timidity, or inability to generate any solution. (p. 33)

Very little research has been done relating cognitive tempo to the acquisition of skills in specific curriculum areas. The reading process appears to require of the child many of the characteristics of reflectives. The reader probably brings an established pattern of hypothesis testing to a new learning situation. The manner in which the children process the perceptual input of print to derive meaning from it will therefore be influenced by these stylistic patterns (Davey, 1971).

In one of the first studies investigating the relationship between cognitive tempo and reading scores (Kagan, 1965), students in the first grade who were already reading were scored on 10 types of errors in reading: mispronunciation, meaningful substitution, nonmeaningful substitution, partial-identity substitution, self corrections, skipping

lines, intrusions, intentional omissions (inability to decode), impulsive omissions (omits by mistake), and suffix errors. Errors considered impulsive were partial-identity errors, meaningful and nonmeaningful substitutions, and suffix errors, because in each case the child hypothesizes about the word but often offers an incorrect response. In general, the most impulsive children in first grade had the highest reading error scores at the end of second grade.

Two groups of reflective and impulsive children were tested on the vocabulary and comprehension portions of the Gates MacGinitie Reading Test, Primary Form B after two years of instruction in either a synthetic or analytic reading method (Readance & Baldwin, 1978). At the completion of this study, the following results were of significance: In the synthetic approach, reflectives made higher scores in vocabulary; and in the analytic approach, reflectives made better scores in comprehension.

In a study by Lesiak (1970), 60 first and fifth grade students classified as either impulsive or reflective were compared on measures of word recognition, comprehension, and critical reading. Even though there were no significant differences among the fifth graders, the 15 most reflective girls performed significantly better on all three measures of reading ability than their impulsive counterparts. The 15 most reflective first grade boys scored higher only on the measure of critical reading. It was concluded that impulsivity-reflectivity was a more important factor in reading acquisition than it was for fluent readers.

In a study of acquisition of sight words by beginning readers, Erickson and Otto (1973) concluded that intralist similarity was of little assistance to impulsives. Reflectives, however, were aided in sight word acquisition by intralist similarity. Overall, reflectives made significantly fewer sight word errors on the lists used than did impulsives.

Research into the impulsivity-reflectivity dimension of reading readiness (Shapiro, 1974) indicated that reflective first grade males scored significantly higher than impulsive males on the total measure of reading readiness as measured by the Gates MacGinitie Readiness Skills Test. This analysis further indicated that the greater the number of errors on the MFF, the lower the score on the readiness measure. It also indicated that the longer the time to respond, the better the performance on the readiness skills test. Margolis (1974), using the Metropolitan Readiness Test, corroborated that reflective students scored higher than impulsive students.

The available research indicates that reflective students are more likely to be successful in the acquisition of reading skills as measured by standardized tests than are impulsives. Little is known regarding response patterns of reflectives and impulsives on specific reading tasks. A determination of relationships which may exist between cognitive tempos and response patterns should provide information for further understanding of yet another dimension of individual differences in learning reading skills.

Purpose

This study investigated possible relationships between types of responses made on a cloze informal reading inventory (CIRI) and scores on the MFF.

Sample

The 125 students in grades two through six who were enrolled in a small southcentral Kentucky school comprised the sample for this study. Kindergarten and first grade students were not included, as research indicates that the cloze procedure may not be appropriate at these grade levels (Ransom, 1965).

Procedures

All students were given the MFF and an informal reading inventory (IRI). Using fifth word deletions, a CIRI was constructed from a basal reader series. Prior to administering the CIRI, students were prepared for the task by involvement in zip and maze and other oral and written cloze-type activities (Smith & Robinson, 1980) until familiarity with the cloze format was evident. Initial CIRI testing level for each student was determined by instructional level secured on the IRI.

Analysis of Data

The scoring of the MFF deviated from procedures suggested by Kagan et al. (Salkind & Wright, 1977). An impulsivity (I) score was generated from raw latency and errors ($z_e - z_l$) where z_e = a standard score for errors and z_l = a standard score for latency. Large positive I scores are indicative of impulsivity and large negative I scores indicative of reflectivity. An efficiency (E) score was then generated in a similar manner ($z_e + z_l$). Large positive E scores indicated efficiency.

CIRI instructional reading levels (44-53% correct responses) were then determined. Types of responses on the CIRI were analyzed using Bormuth's seven categories (1965)--exact responses; synonyms, grammatically correct; synonyms, grammatically incorrect; related semantically, grammatically correct; unrelated semantically, grammatically incorrect; unclassifiable; and no response. Data from I scores, E scores, and CIRI response types were subjected to regression analyses to determine if any one type of cloze response was related to impulsivity-reflectivity or to efficiency-inefficiency ($p < .05$). Because of the few student responses which could be classified as synonyms, grammatically incorrect and as unclassifiable, five rather than the seven cloze categories were used in data analyses.

Results

Neither impulsivity scores (I scores) nor efficiency scores (E scores) alone were related to cloze response type. When I and E scores were combined, they were related to only one response type--incorrect response, grammatically correct. In this one instance in which a significant relationship was found, I and E scores together predicted only 18% of the variance.

Conclusions

Research has indicated that the cloze procedure may be effectively utilized as an instrument for determining placement in reading materials (Hicks & Monroe, 1979; Schneyer, 1971) and for instructional purposes (Jongsma, 1971; Smith & Robinson, 1980). The results of this study suggest that types of responses made on the cloze informal reading inventory may not be affected to a significant degree by cognitive tempo

as measured by the MFF. Therefore, it appears that consideration of cognitive tempo may not be a necessary factor in the use of cloze-type materials with elementary school students. However, further research is needed for valid generalizations to be forthcoming regarding relationships of cognitive tempo and cloze responses. Consideration of the following factors would be helpful: (a) measures of cognitive tempo other than the MFF; (b) cognitive style when interpreted as field dependence versus field independence, as locus of control, or in other ways (McCandless & Evans, 1973); (c) grade level, intelligence quotient, socioeconomic status, and sex; and (d) oral versus written responses on cloze tasks.

References

- Block, J., Block, J. H., & Harrington, D. M. Some misgivings about the matching familiar figures test as a measure of reflection-impulsivity. Developmental Psychology, 1974, 10, 611-632.
- Bormuth, J. F. Validities of grammatical and semantic classifications of cloze test scores. In J. A. Figuerel (Ed.), Reading and inquiry. Newark, Del.: International Reading Association, 1965.
- Davey, B. A psycholinguistic investigation of cognitive styles and oral reading strategies in achieving and underachieving fourth grade boys (Doctoral dissertation, Case Western Reserve, 1971). Dissertation Abstracts International, 1972, 32, 4414A. (University Microfilms No. 72-6282)
- Erickson, L. G., & Otto, W. R. Effect of intra-list similarity and impulsivity-reflectivity on kindergarten children's word recognition. Journal of Educational Research, 1973, 66, 466-470.
- Hicks, R. D., & Monroe, E. A comparison of reading achievement, current reading placement, sex, age, intelligence, informal reading inventory, and the cloze procedure. Paper presented at the annual meeting of the College Reading Association, Boston, November 1979. (ERIC Document Reproduction Service No. ED 181 438)
- Jongsma, E. The cloze procedure as a teaching technique. Newark, Del.: International Reading Association, 1971.
- Kagan, J. Reflection-impulsivity and reading ability in primary grade children. Child Development, 1965, 36, 609-628.

- Kagan, J., & Messer, S. B. A reply to "Some misgivings about the matching familiar figures test as a measure of reflection-impulsivity." Developmental Psychology, 1975, 11, 244-248.
- Kagan, J., Rossman, B., Day, D., Albert, J., & Phillips, W. Information processing in the child: Significance of analytic and reflective attitudes. Psychological Monographs, 1964, 78 (1, Whole No. 478).
- Lesiak, J. F. L. The relationship of the reflection-impulsivity dimension and the reading ability of elementary school children at two grade levels (Doctoral dissertation, Ohio State University, 1971). Dissertation Abstracts International, 1971, 32, 244A. (University Microfilms No. 71-18044)
- Margolis, H. The effects of an impulsive or reflective conceptual tempo upon the auditory perceptual, reading readiness, and intelligence test performance of kindergarten children (Doctoral dissertation, Hofstra University, 1974). Dissertation Abstracts International, 1974, 35, 1503A-1504A. (University Microfilm No. 74-19, 733)
- McCandless, B. R., & Evans, E. D. Children and youth: Psychosocial development. Hinsdale, Ill.: Dryden, 1973.
- Random, P. E. H. A study to determine reading levels of elementary school children by cloze testing. Unpublished doctoral dissertation, Ball State University, 1965.
- Readance, J. E., & Baldwin, R. S. The relationship of cognitive style and phonics instruction. Journal of Educational Research, in press.

- Salkind, N., & Wright, J. C. The development of reflection-impulsivity and cognitive efficiency: An integrated model. Human Development, 1977, 20, 377-387.
- Schneyer, I. S. Cloze as a predictor of reading group placement. Paper presented at the annual meeting of the International Reading Association, Atlantic City, N. J., April 1971.
- Shapiro, J. E. The relationship of reading readiness skills to reflectivity-impulsivity and to the effects of visual discrimination training on impulsive first grade boys. Unpublished doctoral dissertation, Syracuse University, 1974.
- Smith, N. B., & Robinson, H. A. Reading instruction for today's children. Englewood Cliffs, N. J.: Prentice-Hall, 1980.
- Wright, J. The Kansas reflection-impulsivity scale for preschoolers (KRISP). St. Louis: CEMREL, 1971.